Prof. Henry's opinion is exceedingly ingenious and worthy of attention.

Invitations were presented from Professor Kendall, to inspect the Astronomical Observatory at the High School, and from Dr. Charles Frederick Beck, to examine the compound microscope of Powell and Lealand, belonging to him, after the adjournment.

Dr. Patterson, Director of the Mint of the United States, invited the members and visiters to witness the operations of the Mint, before the meeting of to-morrow morning.

SPECIAL MEETING.

Sixth Session, 29th May, half past 7 o'clock, P. M.

Dr. Patterson, Vice-President, in the Chair.

Professor Frazer presented a written communication, entitled, "Transformation of the Series $S = ax + bx^2 + cx^3$, &c., by Professor Theodore Strong, of Rutgers College, New Brunswick, N. J."

It is evident that $x = \frac{1}{\frac{1}{x}} = \frac{1}{\frac{1}{x} - v + v}$, and if we put $y = \frac{1 - vx}{x}$ or $y^{-1} = \frac{x}{1 - vx}$ (1), we get $x = (y + v)^{-1} = y^{-1} - vy^{-2} + v^2 y^{-3} - v^3 y^{-4} +$ &c., $x^2 = y^{-2} - 2vy^{-3} + 3v^2 y^{-4} - 4v^3 y^{-5} +$ &c., $x^3 = y^{-3} - 3vy^{-4} + 6v^2 y^{-5} - 10v^3 y^{-6} +$ &c., $x^4 = y^{-4} - 4vy^{-5} + 10v^2 y^{-6} -$ &c., and so on for x^5, x^6, &c. Hence if we substitute the values of x, x^2, x^3, &c. in the given series, it becomes $S = ay^{-1} + [-av + b]\, y^{-2} + [av^2 - 2bv + c]\, y^{-3} + [-av^3 + 3bv^2 - 3cv + d]\, y^{-4} + [av^4 - 4bv^3 + 6cv^2 - 4dv + e]\, y^{-5} +$ &c.; or substituting the value of y^{-1} from (1), we get $S = a\frac{x}{1 - vx} + [-av + b]\frac{x^2}{(1 - vx)^2} + [av^2 - 2bv + c]\frac{x^3}{(1 - vx)^3} +$ &c. (2), whose law of continuation is evident; and it is manifest that if we expand the functions $\frac{x}{1 - vx}$, $\frac{x^2}{(1 - vx)^2}$, &c., according to the ascending powers of

v, the terms which involve v will mutually destroy each other, and (2) will be reduced to the given series; so that v in (2) is arbitrary, as it ought to be. If in the given series we change S and x into $-S$, $-x$, it becomes $S = ax - bx^2 + cx^3 - dx^4 +$ &c. (3), whose transformation by (2) is $S = a\frac{x}{1+vx} - [-av+b]\frac{x^2}{(1+vx)^2}$ $+ [av^2 - 2bv + c]\frac{x^3}{(1+vx)^3} -$ &c. (4). If we put $v = 1$, and use Δ for the characteristic of finite differences, then (since $\Delta a = -a+b$, $\Delta^2 a = a - 2b + c$, $\Delta^3 a = -a + 3b - 3c + d$, and so on,) (2) and (4) become $S = a\frac{x}{1-x} + \Delta a\frac{x^2}{(1-x)^2} + \Delta^2 a\frac{x^3}{(1-x)^3} + \Delta^3 a$ $\frac{x^4}{(1-x)^4} +$ &c. (5). $S = a\frac{x}{1+x} - \Delta a\frac{x^2}{(1+x)^2} + \Delta^2 a\frac{x^3}{(1+x)^3} -$ &c. (6). (5) is given by Euler at page 283 of his Inst. Cal. Dif. If a, b, c, &c., have constant differences, (5) and (6) will give S the generating function of the given series, and (3). If $a = b = c = d =$ &c. (2) and (4) become $S = a\frac{x}{1-vx} + a(1-v)\frac{x^2}{(1-vx)^2} + a(1-v)^2$ $\frac{x^3}{(1-vx)^3} +$ &c., $S = a\frac{x}{1+vx} + a(v-1)\frac{x^2}{(1+vx)^2} + a(v-1)^2$ $\frac{x^3}{(1+vx)^3} +$ &c., whose generating functions are $S = \frac{ax}{1-x}$, $S = \frac{ax}{1+x}$ v vanishing from the generating functions as it ought to do.

By the aid of v we can change the same series into an indefinite number of forms; for example, if in the last of the above series we put $v = 1 + x$, it will be changed to $S = a\frac{x}{1+x+x^2} + \frac{ax^3}{(1+x+x^2)^2}$ $+ \frac{ax^5}{(1+x+x^2)^3} +$ &c., which has the same generating function as (3), although its form is very different.

It may be observed that (2) and (4) will be exhibited under a more general form by changing v into $\frac{v}{w}$, and they will by a slight reduction become $S = a\frac{wx}{w-vx} + [-awv + bw^2]\frac{x^2}{(w-vx)^2} + [awv^2 -$ $2bw^2v + cw^3]\frac{x^3}{(w-vx)^3} +$ &c. (2′); $S = a\frac{wx}{w+vx} - [-awv + bw^2]$ $\frac{x^2}{(w+vx)^2} + [awv^2 - 2bw^2v + cw^3]\frac{x^3}{(w+vx)^3} -$ &c. (4′).

To show the use of our formulæ, we shall take the well known series, log. $(1+x) = x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \frac{x^5}{5} -$ &c., the loga-

rithms being hyperbolic. Comparing this series with (3), we have $a = 1$, $b = \frac{1}{2}$, $c = \frac{1}{3}$, $d = \frac{1}{4}$, &c.; hence by (4′), if we assume $w = 2$, $v = 1$, we get log. $(1 + x) = S = 2\left[\frac{x}{2+x} + \frac{1}{3}\frac{x^3}{(2+x)^3} + \frac{1}{5}\frac{x^5}{(2+x)^5} + \text{&c.}\right]$; and if we put $x = \frac{z}{n}$ and use logarithms whose modulus is M, we get log. $(n + z) = \text{log. } n + 2\text{M}\left[\frac{z}{2n+z} + \frac{1}{3}\left(\frac{z}{2n+z}\right)^3 + \frac{1}{5}\left(\frac{z}{2n+z}\right)^5 + \text{&c.}\right]$ a well known result; also if we put $w = v$ we get by (4¹), log. $(1 + x) = \frac{x}{1+x} + \frac{1}{2}\left(\frac{x}{1+x}\right)^2 + \frac{1}{3}\left(\frac{x}{1+x}\right)^3 + \frac{1}{4}\left(\frac{x}{1+x}\right)^4 + \text{&c.}$; if this is multiplied by M, we shall have log. $(1 + x)$ in the system whose modulus is M, and if we put $\frac{x}{v}$ for x, it becomes log. $(v + x) = \text{log. } v + \text{M}\left[\frac{x}{v+x} + \frac{1}{2}\frac{x^2}{(v+x)^2} + \frac{1}{3}\frac{x^3}{(v+x)^3} + \frac{1}{4}\frac{x^4}{(v+x)^4} + \text{&c.}\right]$. In a similar manner, by giving different values to v and w, we may obtain an indefinite number of forms for log. $(1 + x)$; but if we would compute the numerical value of log. $(1 + x)$ for any particular value of x, we must take a form whose successive terms decrease, and the more rapidly the better; if the terms should (instead of decreasing) increase, no part of the series can with safety be assumed for the numerical value of log. $(1 + x)$: and similar remarks are applicable in all cases where it is proposed to calculate the numerical value of any generating function by means of series, or, as it is often very improperly said, to sum the series.

Mr. J. N. Nicollet, of Washington City, exhibited his original map of the North Western Territory of the United States, made from personal observations, and read an account of his geographical exploration of the sources of the Mississippi.

Mr. Nicollet left St. Peters on the 26th July, 1836, and the Falls of St. Anthony on the 29th. Having arrived at Crow Wing river, 189 miles above St. Peters, he left the line which had been before explored by Major Pike and other Americans, and directed his course by the Gayank or Gall river, and other streams, to Leech lake. Having succeeded, by the instrumentality of a missionary whom he found there, in conciliating the jealousies of the natives, he again set out in a bark canoe, with three attendants. Crossing several small

lakes to the lake Kabekonang, he ascended the river of the same name. This stream flows in a narrow and deep valley, and is said not to freeze before January, and when frozen, not to thaw before July. Mr. N. found in August, that its waters had a temperature of only 54°, whilst that of the lakes and rivers, which he had noted the preceding days, was between 60° and 70°. It is protected by dense overhanging forests, and has but one small tributary creek, being abundantly fed by springs. It is in latitude 47° 16′, the mean annual temperature being 43°.

From the sources of the Kabekonang by a portage of five miles, he reached the river La Place, which he ascended to the vicinity of Assawa lake, and thence by a painful and difficult portage of six miles he passed to lake Itasca.

This lake, the *Omoshkos Sagaigon* of the Chippeways, the *Lac à la Biche* of the French, and *Elk lake* of the British, has been regarded as the fountain of the Mississippi. It is however supplied by five creeks, which are formed from innumerable streamlets, oozing out of the clay beds at the bases of the "Hauteurs des Terres," or land heights. These elevations consist of accumulated sand, gravel, and clay, intermixed with erratic fragments. They are commonly flat at top, and vary in height from eighty-five to one hundred feet above the level of the surrounding waters. They are covered with thick forests, in which the coniferous plants predominate. South of Itasca lake, they form a semicircular region with a boggy bottom, extending to the S. W., a distance of several miles. Thence they ascend to the N. W. and N., and then stretching to the N. E. and E. through the zone between 47° and 48° of latitude, make the dividing ridge between the waters that empty into Hudson's Bay, and those which discharge themselves into the Gulf of Mexico.

The principal group of the Hauteurs des Terres is subdivided into several ramifications, varying in extent, elevation and course, so as to determine the hydrographical basin of all the innumerable lakes and rivers that characterize that region. One of them extends in a southerly direction, under the name of *Coteau du Grand Bois*, and it is this which separates the Mississippi streams from those of the Red river of the north.

The waters supplied by the north flank of these heights,—still on the south side of Itasca,—give origin to the five creeks which flow into that lake. These waters Mr. N. considers to be the utmost sources of the Mississippi. Those that flow from the southern side of the same heights, and empty themselves into Elbow lake, are the

extreme sources of the Red river of the north; so that the remote feeders of Hudson's Bay and the Gulf of Mexico approximate closely to each other.

Of the five creeks that empty into Itasca lake, one enters its eastern bay; to this Mr. N. has given the name of La Place, and a lake through which it passes he has called after the translator of the Mécanique Celéste, lake Bowditch. But he regards as the infant Mississippi, one of the four which enter the western bay of Itasca, equal in length with the La Place, and more abundant in its supply of water.

On the 29th of August, 1836, this stream, at its entrance into Itasca lake, was from fifteen to twenty feet wide, with a depth of water of from two to three feet. Mr. N. explored it for some miles to its highest streamlets, and determined the mean temperature of the region by plunging a thermometer in the mud from which the springs issue. He found it, on repeated trials, to be between 43° 5′ and 44° 2′ F.; that of the air being 63° and 70° at the times of observation.

These first waters of the Mississippi unite at a short distance from the hills in which they originate, and form a small lake, from which the rivulet passes with a breadth of a foot and a half, and a depth of a foot. Soon however uniting with other streamlets, this supplies a second minor lake, the temperature of which was ascertained to be 48°; and issuing from it with increased velocity and volume, enters a third lake of somewhat larger proportions, from which, by a channel of two or three miles, it passes into lake Itasca.

The only island in Itasca lake is but about 222 yards long. The Mississippi, on issuing from the lake, is sixteen feet wide, having a depth of fourteen inches, perfectly transparent, with a swift current. The temperature of the water at seven o'clock in the morning was 62°, while that of the air was 56°. After an hour's descent, Mr. N. found that the breadth had increased to twenty-five feet, and the depth to three feet.

The communication of Mr. Nicollet proceeded to describe the geographical character of the entire upper Mississippi, as observed by him, its geology, capacities for production, facilities of communication and defence, &c. &c. It is intended to form a part of the elaborate report, now nearly completed by him, of his explorations in that region; and it is therefore less to be regretted that its condensed character precludes a satisfactory abstract of its diversified contents.

Mr. Lea made an oral communication "On Coprolites."

Mr. Lea said, that in this communication he did not profess to introduce any important new facts in connexion with these interesting petrifactions. He was however desirous of showing their geological importance, and of exhibiting his collection of foreign specimens and casts; hoping to draw the attention of his fellow-labourers in this country to a subject but little attended to here.

The introductory part of Mr. L.'s remarks defended the science of geology from the allegation, that observations made in the stratified masses of the earth are of course inconclusive; and he instanced some facts, which he conceived to be as conclusive and precise as the certainties of mathematics. He observed that "if we see in a homogeneous mountain mass the impress only of a fractured portion of a shell or other organic matter, we may be enabled to assign to that mass its proper situation in the great series of formations which compose the crust of our planet. This however does not strike the man of science with any thing like the same wonder as the gradual but certain decadency of the animated beings which inhabited the successive strata."

Mr. Lea exhibited various large drawings of fossilised ejectamenta, and commented on the spiral character of the intestinal passages which must have produced them; and he produced for the sake of comparison specimens of fæces from the living alligator, taken from the banks of the Savannah river, which bore a strong resemblance to one of the foreign coprolites on the table. He observed that coprolitic remains are of rare occurrence in the United States. They had been noticed by Dr. De Kay in the green-sand formations of Monmouth, N. J., by Professor H. D. Rogers at Crosswick's Creek, N. J., and by Dr. Morton in the green-sand of Virginia. Their rarity here, he attributed to the absence in this country of those formations, in which they most abound in England, viz. the strata included in the oolitic groupe.

Mr. L. concluded his communication by calling the attention of the Society to a splendid specimen of *Pentacrinites Briareus*, belonging to his cabinet, from the Lias of England. He described the animal and its functions with the assistance of an enlarged drawing prepared by himself for the occasion.

Dr. B. H. Coates read a Memoir "On the Effects of Secluded and Gloomy Imprisonment on Individuals of the African Variety of Mankind in the Production of Disease."

This was founded partly on statements of the mortality in the Eastern Penitentiary of Pennsylvania, since its organization, thirteen

years ago; partly on the assigned causes of death during four years of that period; and partly on the physiological characters of the African. The statements contained in a memoir he has transmitted to a German Journal, were recapitulated and rendered complete by the addition of the year 1841, which he had previously not included from a defect in the materials.

Dr. C. disavowed any intention of censuring the practice or assailing the mode of punishment by separate confinement, unless in the case of coloured persons; the Eastern Penitentiary being used as an example, because he had been during the above whole period an official visiter of that institution, and because it was the one from which it was most easy to obtain the requisite information. Indeed, it appeared that the mortality of the white persons confined in the prison was less than that of the whites in the City and Liberties of Philadelphia. He had not been able to procure in time the population within the bills of mortality, owing to the manner in which the census is published; but was obliged to make use of the reports collected and analyzed by Dr. G. Emerson for the ten preceding years, extending from 1820 to 1830. Comparing these with the reports from the penitentiary, the relative mortality stood thus:

	Per cent.
White mortality in penitentiary, average of 13 years, ending January 9, 1843,	2.03
White mortality in city and suburbs, average of 10 years, ending Jan. 1, 1831,	2.422
Coloured ditto, city and suburbs,	4.752
Coloured ditto, penitentiary, 13 years,	7.03

Assuming Dr. Emerson's mortality of whites as unity, it was—

Whites in penitentiary,	0.838
Whites in city and suburbs,	1.
Coloured in city and suburbs,	1.962
Coloured in penitentiary,	2.903

The mortality of the coloured in the penitentiary is found to bear to that of the whites, the proportion of 7.03 to 2.03, or of 346 to 100.

Tables were given, further illustrated by curved lines drawn through ordinates, to illustrate the succession and fluctuations of these rates of mortality. The population of the prison had not become steady till 1836; which renders the average of the first six years

more variable and of less value; but after the expiration of that time, a great excess not only in the proportion of deaths, but in the fluctuation of that proportion was visible among the coloured population of the prison. The effect of epidemics was insufficient to account for the discrepancy.

It is necessary here to bear in mind that the convicts in the penitentiary are not, as has been sometimes supposed, the most wretched and most exposed to hardships of our population. The most miserable, and in particular the most miserable blacks, seldom commit the higher crimes which render them liable to the larger periods of confinement for which the penitentiary is intended; but are generally either convicted of lighter offences or committed for vagrancy. In both cases they are sent to the Moyamensing prison. Besides; the immediate effects of drunkenness, recent colds and violence, have generally had time to subside before the prisoners are sent to the penitentiary; as, prior to this, they must undergo their trials, and remain committed in the other prison, if not bailed.

It is evident, that a comparison on terms of perfect equality cannot be made between the white mortality in the prison and that in the city. Of causes tending to diminish the proportion of deaths in the prison, one of the most important is that the convicts are generally persons in the prime of life, and that the prison is exempted from the heavy mortality of infancy, and from that of old age. On the other hand, there must be admitted to occur among the convicts, a large proportion of individuals who have injured their constitutions by a vicious mode of life. With this proviso, there is a convenience in placing together these four ratios in a common view, as follows:

	Per cent.
White mortality in penitentiary, 13 years, - -	2.03
„ „ city and suburbs, 10 years, - -	2.422
Coloured „ „ „ „ - -	4.752
„ „ penitentiary, 13 years, - -	7.03

If Dr. Emerson's average of white deaths in the city and suburbs be assumed as unity, these numbers will then be represented as follows:—

	Per cent.
Whites in penitentiary, - - - - -	.838
Whites in city and suburbs, - - -	1.
Coloured in city and suburbs, - - - -	1.962
Coloured in penitentiary, - - - -	2.903

Dr. Coates did not doubt the adequacy of these statements to establish the fact, that there exists an immense discrepancy in the effect of imprisonment between the coloured people and the whites; and that there is an essential difference in this, as in so many other respects, between the two races. The most prolonged and minute inquiry has failed to discover any difference in the treatment of these two classes in the prison; unless it be, that, from the dislike of cold, the coloured convicts frequently deprive themselves of a portion of their ventilation.

Assuming, then, as the result of this evidence, that there does exist the difference in question between the two races, Dr. Coates passed to the physiological observations which tend to confirm, and at the same time explain it.

The negro, or even the mulatto, is a very different person, in his physical and psychical conformation, from that one who may be presumed to have been held in view in our legislation, the white Anglo-Saxon, Celt or German. His ancestry and the prototype of his race belong to the torrid zone; and even the mixed progeny suffer severely and mortally by our cold. Cheerful, merry, lounging and careless, the Ethiopian American deeply enjoys the sun and light; delights in the open air; and is, as a general rule, constitutionally free from that deep, thoughtful anxiety for the future, so conspicuous in his paler neighbour. The face of heaven seems to him necessary to his existence; and though long confinement is in his case less productive of gloomy remorse, it is far more depressing to his vitality.

The morbid effects of this have been already mentioned, in the production of pulmonary consumption and scrofula; more than 88 per cent. of the deaths being from chronic affections of the lungs and from the last named disorder. The moral consequences are in an equivalent degree depressing to the mind. It is not by remorse and anguish that he is affected, so much as by intellectual and moral weakness and decay; and gloomy confinement becomes thus to him, mentally as well as physically, a nearer approach to the punishment of death.

Dr. C. controverted the opinion that the effect of separate imprisonment has been to produce insanity; though a humane and strict analysis, he said, has shown many to have been affected both with insanity and with imbecility at the times when they committed the offences for which they were sentenced. The effect, scarcely per-

ceptible upon the whites, has been upon the unfortunate coloured prisoners to produce, not mania, but weakness of mind; dementia, instead of deranged excitement.

Recurring to the evidence furnished by the official reports from the Penitentiary, Dr. Coates remarked, that in the reports for 1837, 1838, 1839, and 1842, a detail is given of the mortal diseases and their immediate causes in forty-three cases of coloured persons. These are as follows:—

Consumption and chronic inflammation of the lungs; 1837, 6 cases; 1838, 12; 1839, 1; 1842, 1, - - -	20
Scrofula of the chest, 1838, 1, - - - -	1
Chronic pleurisy, 1838, 2 cases; also affected with chronic inflammation of the stomach, or with that of the bladder, and with paralysis: 1839, 5; of which 1 was cut off by brain fever: 1842, 1, - - - - -	8
Scrofula, of other parts than the chest, 1837, 2 cases; 1838, 4, including affections of peritoneum, bowels, and knee joint; 1839, 2, including peritoneum and hip joint; and 1842, 2,	10
Typhus fever, 1837, - - - - -	1
Remittent fever, 1837, - - - - -	1
Asthenia, 1842, - - - - - -	1
Tetanus, from a burn, 1842, - - - -	1
Total,	43

Vicious habits are enumerated as causes of fourteen of the cases; and in three of them, they are the only cause assigned. Four are ascribed to previous syphilis; and in one, no other cause is recorded.

Of nineteen deaths of white prisoners, during the same years, the diseases were as follows:—

Consumption, 1837, 5 cases; 1838, 3 cases, - -	8
Pulmonary and hip disease, 1842, - - - -	1
Brain fever, reported as owing to scrofula and disorganized lungs, 1837, - - - - - -	1
Syphilitic chronic pleurisy, 1839, - - - -	1
Scrofula, - - - - - - -	0
Syphilis, 1837, - - - - - -	1
Chronic bowel complaints, 1838, 1; 1842, 1, - -	2

Small pox, 1838,	2
Asthenic brain fever, 1839,	1
Stone, 1838,	1
Diseased arteries and enlarged heart, 1842,	1
Total,	19

Vicious habits are assigned as a cause in four cases; and in two are the only cause named. Vice before admission is represented as a cause in four cases; and in two of them is the only one named.

Of forty-three deaths of coloured convicts, twenty-nine are ascribed to chronic diseases of the lungs, and to affections of an adjacent structure, in which these are extremely liable to produce such diseased changes; and ten to scrofula of other parts than the lungs; leaving only four for all other affections; and these four were produced by typhus fever, remittent fever, asthenia and tetanus. Of nineteen deaths among white persons, on the other hand, the causes are found in chronic diseases of the lungs and their appendages, for eleven cases; scrofula, none; chronic bowel complaint, two; small pox, two; and four others are severally attributed to syphilis, asthenic brain fever, stone, and diseased arteries, with enlarged heart. Reduced to per centages, these proportions would read as follows:—

Coloured.

Diseases of chest, exclusive of heart and arteries,	65.12
Scrofula,	23.25
All other diseases,	11.63
Total,	100.

White.

Diseases of chest,	57.89
Scrofula,	0.
All other diseases, including bowel complaints, 10.53, and small pox, 10.53,	42.11
Total,	100.

Mr. Richard C. Taylor read a paper "On Fossil Arborescent Ferns of the family of Sigillaria, occurring in the roof and floor of a Coal Seam in Dauphin County, Pennsylvania."

The author observed, that writers on fossil botany had almost entirely restricted their illustrations to portions or fragments only of the larger coal plants, for the purpose of displaying the characteristic cicatrices and other marks upon their stems, and the structure and arrangement of their leaves. Little has as yet been done towards an actual investigation of the magnitude to which this magnificent flora attains, in the stratified beds of our carboniferous regions. The opportunities which naturalists possess for observing the complete development of the larger plants or trees are rare. M. A. Brogniart cites only one instance where he had measured the stem of a sigillaria, which was forty feet in length and one foot in its greatest diameter.

Upon the geologists, and more especially upon those who direct explorations of mines, the charge mainly devolves of observing and recording the phenomena of fossil vegetation upon the large scale.

Recent opportunities afforded the writer of this paper the means of examining some of the largest specimens of sigillaria of which we possess any record. They occur in a coal seam in the western part of the Schuylkill coal field, on the upper and lower walls of a gallery conducted several hundred feet along a coal seam.

The *floor* of this coal, as usual in Pennsylvania, consists of indurated clay; the "bottom slate" of the colliers. Upon the surface of this are impressed innumerable well preserved specimens of several species of sigillaria; a class of plants which is admitted into the family of tree ferns. More than a hundred of these are exhibited in the drawing illustrating this paper. Of this series, very few of the trunks of these trees are seen here of a less diameter than two feet; many are three feet; several are four and four and a half feet, and one, at least, is five feet wide. In no instance has the area of excavation been extensive enough to exhibit either of the extremities of these enormous stems, notwithstanding that many of them are laid bare for thirty, forty, and fifty feet of their length, without much apparent diminution or tapering upwards.

The *roof* or north wall is of siliceous conglomerate; between which and the coal is an extraordinary assemblage of curving trunks of arborescent ferns of the family of sigillaria. Some of them appear to be dichotomous, and to possess the characters of S. elegans. Such

is the scale of these plants, that the extent of cleared space was, as in the floor, inadequate to elucidate the entire development of their gigantic stems. One example, although laid bare more than fifty feet, shows no signs of either termination, and looks as if it might extend thirty or more feet further. Another exhibits sixty-five feet in length of a flexuous stem, which apparently extended at least thirty feet beyond. A third, the most interesting of the group, shows at its base what obscurely seems to be the root. Near the base, the stem is about two and a half feet in diameter or breadth; forty feet up the trunk, it measures two feet broad, and continues in about this rate of diminution. Seventy feet of this specimen is above the floor of the gallery; it was traced several feet further below the floor, and in all was perhaps eighty to one hundred feet; but of this, and of the character of that superior termination, we have no present knowledge.

Mr. Taylor applied to this interesting illustration of the ancient flora, Mr. Logan's views as to the universal prevalence of the plant stigmaria in the argillaceous coal floors of coal seams, and its absence in the roofs. In the present instance, where a surface of seven or eight thousand square feet has been denuded, stigmaria are but rare. Only two well defined specimens have been observed. One of these is seen in the roof *above* the coal; the other in the floor below the coal.

Six species of fossil plants were observed in the roof, and seventeen species in the floor.

An invitation to the members and visiters was presented from the Mercantile Library Company, to be present at a discourse to be delivered by Dr. Gouverneur Emerson at Laurel Hill Cemetery, on Thursday afternoon, upon the completion of the monument erected by the Company over the remains of Thomas Godfrey, the inventor of the Mariners' Quadrant.